DOCUMENT RESUME

ED 362 507 SP 034 777

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TITLE Instructional Clarity: The Role of Linking and Focusing Moves on Student Achievement, Motivation, and Satisfaction.
PUB DATE Apr 93
NOTE 37p.; Paper presented at the Annual Meeting of the American Educational Research Association (Atlanta, GA, April 12-16, 1993).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Cognitive Style; Concept Formation; Concept Teaching; Higher Education; Instructional Design; *Instructional Effectiveness; Learning Strategies; *Student Motivation; *Teacher Effectiveness; *Teaching Styles; Undergraduate Students
IDENTIFIERS *Instructional Clarity; *Presentation Mode; Variability Measurement

ABSTRACT

This study, designed to examine instructional clarity, focuses on two questions from the literature: (1) Is it necessary for a lesson to contain keys, links, framing statements, focusing moves, and examples in order for students to achieve and be motivated? and (2) What is the specific purpose of links and focusing moves in instruction? Subjects, 40 undergraduate teacher education students, were randomly assigned to 4 treatment groups: (1) a high instructional clarity group; (2) a low instructional clarity group; (3) a high clarity instruction minus links group; and (4) a high instructional clarity minus focusing moves group. Each group viewed a videotaped lesson specifically developed for this investigation; then students completed a questionnaire rating the instructor in each strategy. Results indicate: the instructional clarity variables were influential in changing students' motivation, conceptual achievement, and perception of clarity; focusing and links are necessary; links and focusing moves seem to have unique roles in the delivery of concepts; focusing moves seem to be more important than links in increasing student motivation; and links affect the achievement of students more than do focusing moves. The paper concludes with a discussion of further research needs and eight tables. (Contains 38 references.) (LL)

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Instructional Clarity: The Role of Linking and Focusing Moves on Student Achievement, Motivation and Satisfaction

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April 1993

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Instructional Clarity: The Role of Linking and Focusing Moves on Student Achievement, Motivation and Satisfaction

How can teachers instruct so that students achieve? How can teachers present information so that students are motivated to learn? How can teachers present content so that students say, "That is a good teacher."? These are essential concerns if our educational system is going to improve. What core delivery concepts will allow teachers to motivate students and increase student achievement and satisfaction in instruction? Could instructional clarity concepts such as keys, links, framing statements, focusing moves, and examples provide an answer to these concerns?

Instructional clarity seems to be important in increasing student achievement and satisfaction in instruction (Brown & Armstrong, 1984; Rosenshine & Furst, 1971; Smith, 1982b; Snyder, 1991). Rosenshine and Furst (1971) first emphasized the importance of instructional clarity by ranking it the most effective variable for increasing student achievement. Research throughout the seventies and eighties has established the importance of instructional clarity in modifying student achievement and satisfaction (Brown & Armstrong, 1984; Cruickshank & Kennedy, 1986; Smith, 1982b; Snyder, 1991).

The research during this period has been criticized for four flaws which have prevented it from being applied to the explicit training of student teachers (Cruickshank & Kennedy, 1986; Heath &

Nielson, 1974; Rosenshine & Furst, 1971).

The first problem with research done on instructional clarity is the limited scope of dependent variables used to assess the effect of instructional clarity. This research has focused on dependent variables that measure definitions and comprehension achievement (Smith, 1985c; Snyder, 1991). Only a few studies conducted on instructional clarity have measured higher order thinking (Land, 1981a; Snyder, 1991). Student's satisfaction from instruction has been explored (Land & Smith, 1979a; Smith & Cotten, 1980; Snyder, 1991), but the dependent variable of student motivation has not been studied. The present investigation studied student motivation, achievement of definitions, identification of examples, application of concepts, and student satisfaction.

The second problem with previous instructional clarity research is the lack of clear definitions of specific instructional clarity terms that could be proceduralized and taught (Gliessman, Pugh, Brown, Archer & Snyder, 1989). Gliessman and associates precisely defined these terms on the basis of Brown and Armstrong's (1984) work with explanations. These instructional clarity terms were defined as keys, links, framing statements, focusing moves and examples. These terms have been defined and illustrated by examples in a clearer manner in the present investigation (see Tables 1-4).

Insert Tables 1-4 about here

The third problem with positive low inference instructional clarity research is the lack of studies conducted using a true experimental design. Only four studies have used true experimental designs when looking at specific clarity terms that can be taught to students (Evans & Guyman, 1978; Land, 1979; Land, 1980; Snyder, Bushur, Hoeksema, Olson, Clark & Snyder, 1991). In all of these studies, clear lessons resulted in higher student achievement than lessons that were unclear. The present investigation used a true experimental design to continue this type of research.

The fourth problem with positive low inference instructional clarity research is the limited amount of instructional time used to investigate the effects of instructional clarity on student achievement (Snyder, 1991). The time used in each lesson was from 10 minutes to 20 minutes. The limited amount of time of lessons used to investigate instructional clarity does not take into account the effect that formal classroom variables have on student motivation, achievement, and perception of instructional clarity. Snyder et al. (1991) found that even during a 45 minute instructional period students receiving clear instruction achieved and were more satisfied with their instruction than students who received unclear lessons. In the present investigation students viewed videotaped lessons that were 50 minutes in duration.

The current investigators attempted to answer two broad questions that were asked from previous research (Snyder, et al., 1991). First, is it <u>necessary</u> to contain keys, links, framing statements, focusing moves, and examples in a lesson in order for

students to achieve, be motivated, and perceive a lesson to be clear? Previous research has indicated that there is a significant positive correlation between each clarity move and student achievement and satisfaction with an instructor. This significant positive correlation was true for achievement in defining concepts, identifying examples, and applying concepts. The present investigators sought to discover if links and focusing moves are both necessary for high student motivation, achievement, and perception of instructional clarity.

The investigators in this study sought to answer a second question from previous research. What is the specific purpose of links and focusing moves in instruction? Focusing moves were hypothesized to be more instrumental than links in increasing student motivation. At the same time, it was hypothesized that links would modify student achievement more significantly than focusing moves.

Previous research on instructional clarity has highlighted either high inference positive instructional clarity moves or low inference negative instructional clarity (Cruickshank & Kennedy, 1986). Snyder (1991) combined positive and negative low inference instructional clarity moves. The present investigators continued the use of this combined operational definition.

Positive instructional clarity research was done which focused on what an instructor needs to include when preparing a lesson (Brown & Armstrong, 1984; Cruickshank & Kennedy, 1986; Gliessman et al., 1989). Negative clarity research by Smith and Land (Land,

1985) focused on what an instructor should avoid when presenting information.

Independent Variables

Instructional clarity is a cluster of instructor behaviors that contain an appropriate use of keys, links, framing statements, focusing moves, and examples (Gliessman et al., 1989), and avoids vague terms and mazes (Smith, 1982a).

Student achievement has a significant positive relationship with a high frequency of keys, links, framing statements, focusing moves, and examples (Brown & Armstrong, 1984; Snyder, 1991). The current investigators also studied the degree of linkage that was used in a presentation (see Tables 1-4). Keys are the main ideas of a statement. They can label essential terms, define a term, or state a term in a question format.

Insert Tables 1-4 about here

Links are words or phrases that serve to logically or structurally relate essential information within an explanation. Links can take the form of verbal markers indicating a transition, or the repetition of similar verbal elements in two contiguous statements. Verbal markers can relate points in a presentation together or unite the essential elements of a concept. Verbal markers were measured by the frequency that they occurred in the lesson. The repetition of similar verbal markers in two contiguous statements emphasizes the degree of linkage in a lesson (Simmons,

1977; Anderson, 1967, 1969; Butterworth, 1974; Trindale, 1972; Smith, 1985). The degree of linkage is measured by a commonality coefficient called B_1, that was developed by Anderson (1967).

$$B_1 = \frac{n_1}{n_o + n_1}$$

The n_1 represents the total number of matched verbal elements in the two contiguous statements and n_o is the number of unmatched verbal elements.

The commonality coefficient, B_1, was then added to A_1 and divided by two to get the total degree of linkage. A_1 was a measure that assessed the degree of linkage between a framing sentence and the content that it framed. The framing sentence was treated as one contiguous sentence, and the rest of the sentences described by the framing sentence was also treated as one set of contiguous sentences. A_1 was computed using the following equation:

$$A_1 = \frac{t_1}{t_0 + t_1}$$

The t_1 represents the total number of substantive terms that are found both in the topic or framing sentence and the rest of the sentences that make up the other contiguous set of sentences. The t_0 represents the new substantive terms that are mentioned in the set of contiguous sentences and not mentioned in the topic or framing sentence. $B_1 + A_1$, divided by two represents the total degree of linkage. A highly linked presentation has a compound commonality coefficient of .50, and a lowly linked presentation has

a commonality coefficient of between .25 and .30 (Nkpa, 1984).

Focusing moves center the students' attention on key elements of the instructional content that is being presented. Focusing moves can take verbal and nonverbal forms. Verbal focusing moves include: (a) repeating key elements to emphasize the point (Bush, Kennedy, Cruickshank, 1977), (b) rephrasing the key elements to be emphasized (Huh, 1986), (c) using markers of importance, like saying "This is important" (Hines, Cruickshank & Kennedy, 1985; Huh, 1986; Larsen, 1985), (d) using hesitations to emphasize key elements or transitions (Gloeckner, 1983, Mintzes, 1979), and (e) using intonation to stress key elements of the content.

Nonverbal focusing moves include the following: (a) writing key points on a chalkboard, chart, slide, video screen, or overhead (Brown & Armstrong, 1984; Cruickshank & Kennedy, 1986; and Larsen, 1985), (b) pointing to key words or objects, (c) gesturing what is being verbally presented, (d) using a visual aid to emphasize a key element, (e) creating class interaction to emphasize key elements, and (f) presenting a demonstration to emphasize key ideas.

Framing refers to statements that set the context for a lesson or explanation. Frames can take the form of creating interest in a topic, introducing the parameters of a topic, or reviewing the parameters of a topic.

Examples make ideas, concepts, and principles concrete. Examples can take the form of role plays, verbal representations, or media-presented illustrations. Examples can either be general and incomplete or specific and complete covering each attribute of

the concept being addressed.

This investigation stressed the effects of instructional clarity when either linking or focusing moves were removed from a lesson containing all other elements of clarity. The lesson received by the control group had a reduced frequency of all the clarity moves and also included vague terms and mazes.

Dependent Variables

The dependent variables in this investigation are measures of student motivation using the ARCS Model (Keller, 1984), concept learning based on Stones' (1979) model, and student perception of instructional clarity using the Clarity of Teacher Questionnaire.

Different aspects of student motivation were measured by using Keller's ARCS Model of student motivation. This model isolates four motivational strategies: Attention, Relevance, Confidence, and Satisfaction. These four motivational strategies integrate contemporary theories of motivation.

These strategies were used to develop a questionnaire to be given to subjects following videotaped instruction. The questionnaire asked subjects to rate the instructor on each of the strategies used in the ARCS Model. The investigators in this study sought to discover the motivational processes that existed in subjects while they watched the videotape.

Stones's (1979) concept learning model stresses how students define, identify examples, and apply content. In the current investigation, when students defined content they were required to recall a complete definition of a concept. Students were then

asked to identify examples of concepts they had learned. Lastly, students were asked to apply these concepts within a given context.

Student perception of instructional clarity was examined by administrating the Clarity of Teacher Questionnaire which asked subjects to rate videotaped instruction on each of the clarity moves. These moves included keys, links, framing statements, focusing moves, and examples.

Five hypotheses were entertained: two motivational hypotheses, two achievement hypotheses, and one perception of clarity hypothesis.

Hypothesis 1. High clarity instruction results in higher levels of student motivation than low clarity instruction. This hypothesis was analyzed by comparing experimental and control groups on their total motivational score as measured by the ARCS Motivational Questionnaire.

Hypothesis 2. More frequent use of focusing moves results in higher student motivation. This hypothesis was analyzed by comparing experimental and control groups on the Attention, Relevance, Confidence, and Satisfaction subscales of the ARCS Motivational Questionnaire.

Hypothesis 3. Lessons containing a high number of keys, links, framing statements, focusing moves, and examples result in higher student achievement and perception of clarity than lessons lacking links or focusing moves, or lessons having a low frequency and degree of structural clarity moves.

Hypothesis 4. Students who receive high clarity instruction

without links have lower achievement scores than groups receiving instruction that contains links.

Hypothesis 5. Students perceive lessons with high clarity instruction as clearer than lessons with high clarity instruction without linking or focusing moves and also clearer than low clarity instruction.

Method

Subjects

The subjects in the investigation were 40 undergraduate students randomly assigned to four treatment groups. The subjects were taken from a teacher education class and received extra credit for participating.

Research Design

A 1 X 4 completely randomized design was utilized to assess the effects of four levels of instructional clarity (see Table 5). The four groups were: (a) a high instructional clarity group, (b) a high instructional clarity minus links group, (c) a high instructional clarity minus focusing moves group, and (d) a low instructional clarity group. Each of the groups received instruction for 50 minutes.

Insert Table 5 about here

The high instructional clarity group received a videotaped lesson that had all of the previously mentioned clarity moves. The lesson had an average of 23 clarity moves per page of script.

There were approximately eight keys, five links, one framing statement, seven focusing moves, and two examples on each page. The degree of linkage was .50. There were no negative clarity moves contained in the lesson.

The high instructional clarity minus links group received all the types of clarity moves except links in the lesson they viewed. The lesson consisted of an average of 19 clarity moves per page of script. There were nine keys, zero links, one framing statement, seven focusing moves, and two examples per page of script. The degree of linkage was .32. There were no negative clarity moves contained in the lesson.

The high instructional clarity minus focusing moves group received all the types of clarity moves except focusing moves in the lesson they viewed. The lesson had an average of 15 clarity moves per page of script. There were eight keys, four links, one framing statement, zero focusing moves, and two examples on the average per page of script. The degree of linkage was .49. There were no negative clarity moves contained in the lesson.

The low instructional clarity group received very few clarity moves except keys. Keys needed to be contained in order for the content to convey a similar meaning in all of the groups. The lesson had an average of 6.7 clarity moves per page of script. There were 6.5 keys, zero links, .1 framing statements, zero focusing moves, and .1 examples on the average per page of script. The degree of linkage was .32. There was an average of 9.5 negative clarity moves per page that included eight vague terms and

1.5 mazes.

Procedure

Four scripted videotaped lessons were developed which explained how to intrinsically motivate students. The scripts were written to contain the prescribed number of clarity moves, degree of linkage, and the negative clarity moves mentioned in the design section of this paper.

The taping of the four lessons was done by an instructor presenting information to a classroom via a teleprompter. The taping was then professionally edited to include both the instructor's movements, visual aids, and student reactions to the instructor.

The four videotaped lessons were then presented to four randomly selected groups. After students viewed the 50-minute videotape on intrinsic motivation, they received the ARCS Motivational Questionnaire, a concept achievement test, and the Clarity of Teaching Questionnaire.

Each of the four groups were videotaped as they watched the lesson on intrinsic motivation to gain information on how students processed the content they received. A random sample of four students from each group was selected to be interviewed on their perspectives of the focusing moves that were used in their videotaped lesson. Recall of their motivation when focusing moves were being used was stimulated by allowing students to re-watch segments of focusing moves from the videotaped lessons.

The three sections of the concept achievement test were graded

separately. A list of objective criteria for correct answers were given to graders. The definition section was worth a possible 28 points. The identification section was worth 20 points, and the application section was worth 10 points.

Results

One way ANOVA's were conducted for each dependent variable comparing student responses in the high instructional clarity, the high instructional clarity minus links, the high instructional clarity minus focusing moves, and the low instructional clarity lessons. The Tukey multiple comparison test was utilized to locate differences among students in the experimental conditions. Due to unequal n's in the experimental groups, the Scheffe multiple comparison test was used to locate differences among students in the experimental conditions on how motivated they were. Effect sizes were conducted to locate the amount of score variance that could be accounted for by instructional clarity on each dependent variable.

Motivation

Hypothesis 1. It was hypothesized that high clarity instruction would result in higher student motivation than would low clarity instruction. There was a significant difference among students receiving high instructional clarity, high instructional clarity minus links, high instructional clarity minus focusing moves, and low instructional clarity lessons in regard to the combined score of the ARCS Motivational Questionnaire ($F(3,35)=9.69, p<.001$). The students receiving the high

instructional clarity and the high instructional clarity minus links presentations reported significantly higher levels of motivation than the students receiving the high instructional clarity minus focusing moves and the low instructional clarity lessons ($p<.05$). Subjects receiving the lesson presented with high instructional clarity minus links did not report significantly different motivational scores than the subjects receiving the low instructional clarity lesson ($p<.05$). Students receiving high instructional clarity were more motivated than students receiving low instructional clarity (see Table 6). Instructional clarity accounted for 45 percent of the score variance of student motivation measured by the accumulation of the four ARCS Motivational Questionnaire scales.

Insert Table 6 about here

Hypothesis 2. It was hypothesized that a frequent use of focusing moves in instruction would result in higher student motivation. This hypothesis was confirmed for Attention and Relevance motivation but not for Satisfaction motivation. Students reported that Confidence motivation was only higher when high instructional clarity groups received lessons which did not contain links. (see Table 6).

There was a significant difference among students in experimental groups reporting that they were motivated to attend to the lesson ($F(3,36)=13.49, p<.001$). Students receiving lessons with

a high number of focusing moves reported significantly more motivation to attend to the lesson than groups that did not receive a high frequency of focusing moves ($p<.05$). The high instructional clarity and the high instructional clarity minus links were the two groups whose lessons contained a greater frequency of focusing moves. Instructional clarity accounted for 53 percent of the score variance for Attention motivation.

There was a significant difference among subjects in experimental groups reporting that they were motivated by the relevancy of the lesson ($F(3,36)=7.27, p<.001$). Students receiving lessons with a high number of focusing moves reported significantly more Relevance motivation than groups that did not receive focusing moves ($p<.05$). Instructional clarity accounted for 38 percent of the score variance for Relevance motivation.

There was a significant difference among subjects in the experimental and control groups reporting that they were motivated by the confidence that the lesson content gave them ($F(3,36)=5.49, p<.01$). The only group of students that reported significantly different Confidence motivation was the high instructional clarity minus links group ($p<.05$). It should be noted that the clearest group, the high instructional clarity group, did not report Confidence motivation scores that were significantly higher than the low instructional clarity group ($p>.05$). Instructional clarity accounted for 32 percent of the score variance for Confidence motivation.

There was no significant difference between any of the

instructional clarity groups' reported scores on Satisfaction motivation ($F(3,35)=1.69, p>.1$). The results indicate that instructional clarity has little effect on scores students report concerning Satisfaction motivation (see Table 6). Instructional clarity accounted for only 13 percent of the score variance for Satisfaction motivation.

Achievement

Hypothesis 3. It was hypothesized that lessons containing a high frequency of keys, links, framing statements, focusing moves, and examples, and a high degree of linkage would result in higher student achievement than lessons lacking either links and a high degree of linkage, or lacking focusing moves and a high frequency of all the instructional clarity moves. There was a significant difference between the experimental groups and control group in students' ability to define concepts ($F(3,36)=3.74, p<.05$), identify examples of a concept ($F(3,36)=3.28, p<.05$) and apply a concept to a novel example ($F(3,36)=2.90, p<.05$). Instruction clarity accounted for 24 percent of the score variance for defining concepts, 22 percent of the score variance for identifying examples, and 19 percent of the score variance for applying concepts.

The only group of students that achieved significantly better than the low instructional clarity control group when students defined and identified examples was the high instructional clarity group ($p<.05$). This suggests that it is necessary to have both links and focusing moves, supported by keys, framing statements,

and examples in order for students to achieve significantly better than students receiving an unclear presentation.

The only significant difference in students' ability to apply concepts was between the high instructional clarity group and the high instructional clarity minus links group ($p<.05$). This is particularly interesting because the high instructional clarity minus links group reported being the most motivated, yet did the worst of all four groups at applying the concepts. This suggests that linking content together must be beneficial to students in applying content to novel situations if all other types of instructional clarity moves accompany them in the delivery of a lesson (see Table 7).

Insert Table 7 about here

Hypothesis 4. It was hypothesized that students who received instruction lacking links would have higher achievement scores than those students whose lessons contained links. When students defined concepts, identified examples, and applied the concepts they had learned, the students that had links in their presentations achieved more than students who did not (see Table 1). This trend would suggest that links facilitate students' conceptual understanding (see Table 7).

The only significant difference in students' achievement was between students receiving low instructional clarity and students receiving high instructional clarity ($p<.05$). This indicates that

both links and focusing moves accompanied by keys, framing statements, and examples are necessary for significant increases in achievement over low instructional clarity.

Perception of Clarity

Hypothesis 5. It was hypothesized that students would perceive lessons with high instructional clarity as clearer than lessons with high instructional clarity minus links, high instructional clarity minus focusing moves, or low instructional clarity. There was a significant difference between the instructional clarity groups ($F(3,36)=22.96, (p<.0001)$. Students in each of the high instructional clarity groups reported that the lessons they received were clearer than students in the low instructional clarity group ($p<.05$). Students in the high instructional clarity group and the high instructional clarity minus links group perceived their lessons as significantly clearer than the high instructional clarity minus focusing moves group and the low instructional clarity group ($p<.05$). The students in the high instructional clarity group did not perceive their lessons as significantly clearer than the high instructional clarity minus links group ($p<.05$). These results indicate that focusing moves affect the perceived clarity of a lesson more significantly than the inclusion of links (see Table 8). The variables used to represent instructional clarity accounted for 65 percent of the score variance for clear teaching.

Insert Table 8 about here

Discussion

The instructional clarity variables used in this investigation were influential in changing students' motivation, conceptual achievement and perception of clarity in a presentation. These cognitive processes are essential for the acquisition and transference of knowledge. (Lepper, 1988; Smith, 1985; Snyder, 1991) The utilization of focusing and links in an instructor's presentation is necessary if motivation, achievement, and the perception of clarity are to be efficiently modified in classroom instruction. Links and focusing moves seem to have unique roles in delivery of concepts within the classroom. In a presentation, focusing moves seem to be more important than links in increasing student motivation, however, links affect the achievement of students more than focusing moves.

Motivation in Instruction

When Attention, Relevance, Confidence, and Satisfaction motivation are considered together, focusing moves significantly increase the motivation of students during a 50-minute lesson. Focusing moves had a direct positive influence on intrinsic motivation but not extrinsic motivation. Focusing moves had a significant positive influence on students' Attention, Relevance and Confidence motivation. Newby (1991) conceptualizes that these types of motivation influence intrinsic motivation. Focusing moves

did not significantly affect motivational Satisfaction, an extrinsic motivational category. This suggests that instructors can intrinsicly motivate students by drawing their attention to key elements in a presentation. This instructional clarity move can be taught to student teachers directly by teaching both verbal and nonverbal forms of focusing in a specific fashion (see introduction for specific focusing moves). This seems to be an extremely important skill to teach future instructors due to the fact that student motivation is one of the main complaints of teachers and they emphasize extrinsic motivation in their classrooms (Newby, 1991). The large effect sizes of instructional clarity that accounted for student motivation supports the practical importance of teaching focusing moves to student teachers.

When links are added to a clear presentation, students' motivation is depressed, but not significantly. If focusing moves are withheld and links are added, student motivation is even lower and results in a significant difference from groups that include focusing moves. Therefore, the use of links in a lesson does not facilitate motivation, but actually reduces it.

Studies that have looked only at the role of the degree of linkage have given a distorted impression of links. Anderson contends that the degree of linkage alone is essential for good teaching (Anderson, 1969). Without the supporting help of focusing moves, links can be very damaging to the motivation of students. The concept of instructional clarity used in the current investigation seems to have more practical value than the degree of

linkage for training student teachers and effecting change in students.

Attention Motivation. Attention motivation was the motivation most affected by instructional clarity. Specifically, a high number of focusing moves were required with the support of other instructional clarity moves if student Attention motivation was to be significantly different than in an unclear presentation. Keller (1987) says that this type of motivation is a prerequisite for learning. The motivational desire of an instructor is to obtain and sustain attention. To accomplish this an instructor needs to appeal to the sensation-seeking needs of students (Zuckerman, 1971) and arouse their knowledge-seeking curiosity (Berlyne, 1965) without overstimulating them. This objective seemed to be accomplished successfully by increasing the frequency of focusing moves with the support of keys, framing statements and examples. Links reduced the ability of an instructor to change the intrinsic motivation of students. Links significantly decreased the Attention motivation of students when they were delivered without focusing moves in high instructional clarity presentations.

Relevance Motivation. Relevance motivation was significantly affected by a high instructional clarity presentation that included a high number of focusing moves. When a high instructional clarity presentation was delivered without focusing moves, Relevance motivation was not significantly different from a low instructional clarity presentation. When links were added to a clear presentation that contained a high number of focusing moves,

Relevance motivation was reduced in comparison to a high instructional clarity group that did not have links.

Relevance motivation is increased by: (a) giving reasons why content is meaningful, (b) an innate desire to resolve inconsistencies in ideas, and (c) the methodology of the instructor (Keller, 1987). This type of motivation seems to be increased by clear teaching that uses a high number of focusing moves. A high number of links hinders Relevance motivation in students.

Confidence Motivation. Confidence motivation is affected less than Attention and Relevance motivation by high instructional clarity. Only when links are withheld from a presentation and a high number of focusing moves are used does a presentation motivate students in the area of confidence more than an unclear presentation.

Confidence motivation influences a student's persistence and accomplishment. Confidence is the amount of expectancy for success a student has in the learning environment (Keller, 1987). Confident students attribute the causes of success to ability and effort instead of luck or the difficulty of the task (Weinerb, 1974; Dweck, 1986). Confidence motivation will allow students to learn even if it means making mistakes (Bandura & Schunk, 1981). This important type of motivation is increased if an instructor uses a high frequency of focusing moves and avoids links in the lesson.

Satisfaction Motivation. Instructional clarity did not seem to affect Satisfaction motivation. A high number of focusing moves

did not significantly affect Satisfaction motivation when it was compared to low instructional clarity. To increase Satisfaction motivation an instructor must do more than provide clear content.

Achievement in Instruction

Concept achievement is increased significantly over low instructional clarity presentations only when all clarity moves are included. Links and focusing moves are both necessary if students are going to achieve. Without links, even highly motivated students will not achieve more than students who have received low instructional clarity.

Defining and Identifying Concepts. Only the students who received high instructional clarity that included both a high number of links and focusing moves were able to define and identify concepts better than students receiving low instructional clarity. This data supports previous studies that showed that students receiving high instructional clarity presentations outperformed students receiving low instructional clarity presentations when content was taught using a variable coordinate concept structure (Snyder, 1991). This suggests that both focusing and links are necessary for increasing student achievement. This would imply that student teachers should be taught techniques which would allow them to use a high number of both of these variables in their lessons.

Applying Concepts. Students who received high instructional clarity that included both a high number of links and focusing moves did significantly better than students receiving high

instructional clarity that did not have links. It should be remembered that students receiving high instructional clarity without links were the most motivated to learn. This motivation to learn did not translate to the ability to apply concepts better than other groups. In fact, the lack of links combined with keys, focusing moves, framing statements, and examples is prohibitive to applying learned concepts.

The scores for all groups were low, indicating that concept learning must be combined with problem solving techniques in those content areas for students to transfer knowledge to new situations.

Future Research. Future research needs to concentrate on how a high degree of instructional clarity relates to student motivation, anxiety, work ethic and achievement in a naturalistic context over a semester. This would increase the ecological validity of the literature on instructional clarity. It would help develop an understanding of the daily accumulation effects that a high degree of instructional clarity has on various student variables. This type of research would help instructors to understand how the use of instructional clarity effects students when done consistently within their classrooms.

Second, because of the importance of instructional clarity to classroom motivation and achievment, research needs to be conducted on the best methods for training students in using these skills. It is suggested that a longitudinal study be conducted to see the long term effects of trainng in instructional clarity.

Table 1 — Clarity Constructs

Label	Definition	General Moves
Positive Clarity		- Labeling key terms
Key	Main Ideas of a statement	- Define a term - State a term in a question format
Links	Logically or structurally relate keys	- Relate points in a presentation together - Relate the essential elements of a concept by a) hierarchy, b) sequence, c) matrix
Framing Statements	Sets the context for lesson or explanation	- Creating interest in a topic - Introducing the parameters of a topic - Reviewing the parameters of a topic
Focusing	Serve to center students' attention on keys	- Hesitations, purposeful gestures, underlining, writing on board, repeating points, creating class interaction, verbal markers
Examples	Makes ideas, concepts, and principles concrete	- role play - verbal illustration - media presented (i.e. video tape) * Each could be a part or whole example

Table 2 — Clarity Constructs

Label Key	Specific Examples
(Labeling Key)	- Fixed ratio reinforcement is the first schedule of reinforcement.
(Defining Key)	- Fixed ratio reinforcement is defined as ...
(Question Key)	- A schedule of reinforcement that is given after a constant number of correct responses is?
Links	
Presentation Link)	- The second point you need to ...
(Concept Link)	- The fixed ratio reinforcement schedule is like the fixed internal because ...
(Concept Link)	- The fixed ratio reinforcement schedule is different from the fixed internal because ...
Framing Statements	
(Interest Frame)	- We are going to address five schedules that are used by advertisers to get you to continue to buy their products.
(Introduction of Lesson Parameters Frame)	- We are going to address five schedules of reinforcement today: 1) fixed ratio, fixed interval, 3) variable ratio, 4) variable interval, 5) continuous
(Conclusion Frame	- We have covered five schedules of reinforcement today, they are ...
Focusing	
(Verbal Marker Focusing Moves)	- The most important point to understand is ..
(Repeating Key Points Focusing Moves)	- The schedule is fixed ratio, fixed ratio ...
(Underlining Focusing Moves)	- Note the words that are underlined, they are most important
(Hesitation Focusing Moves)	- Fixed ratio, (pause in speech) fixed ratio
Examples	
(Role Play Example)	- Class sees a teacher role play on agoraphobia
(Verbal Illustration Example)	- An example of a fixed individual ratio schedule of reinforcement
(Media Presented Example)	- This excerpt of factory production system will illustrate a fixed ratio schedule of reinforcement.

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Table 3

Clarity Constructs

Label	Definition	General Moves
Negative Clarity		
Vagueness Terms	Words that distract or only give a general idea of a more specific concept	(categories) - ambiguous designations - approximations - "bluffing" and recovery - error admission - indeterminate quantification - multiplicity - negated intensifiers - possibility - probability
Mazes	Teacher moves that cause students to be confused concerning the direction of the communication	- false starts - halts in speech - redundantly spoken words - tangles of words in communiction

Table 4

Clarity Constructs

Specific Examples

Negative Clarity

Vagueness Terms

- Something else you should know (ambiguous designation)
- This is sort of an important issue ... (approximations)
- In a nutshell what I mean is ... (bluffing and recovery)
- Possibly this is an important point to remember (possibility)
- Generally a fixed ratio schedule of reinforcement is ... (probability)
- I want to discuss a bunch of ideas (indeterminate quantifications)
- The continuous schedule of reinforcement is not very good (negated intensifiers)
- Excuse me, I am sorry, that isn't a good example (error admission)

Mazes

- The interval ratio, no I mean the fixed interval schedule is ... (false starts or halts in speech)
- The main, uh, uh, point of uh, uh, the ratio, uh, uh, (redundantly spoken words)
- The ratio interval is a device for the importance of helping people (lack of semantic sense)

Table 5

Design for Instructional Clarity Experiment

Instructional Moves	High Clarity	High Clarity Minus Links	High Clarity Minus Focusing Moves	Low Clarity
(Frequency of Positive Clarity Moves)				
Keys	8	9	8	6.5
Links	5	0	4	0
Framing Statements	1	1	1	.1
Focusing Moves	7	7	0	0
Examples	2	2	2	.1
Average Clarity Move Per Page of Script	23	19	15	6.7
Degree of Links	.50	.32	.49	.32
(Frequency of Negative Clarity Moves)				
Vague Terms	0	0	0	0
Mazes	0	0	0	1.5
Average Negative Clarity Moves Per Page of Script	0	0	0	9.5

Table 6
Means and Standard Deviations of Student Motivation

	N	M	SD
ARCS Total			
High Clarity	10	170.20	28.97
High Clarity Minus Links	10	183.30	24.66
High Clarity Minus Focusing	10	129.80	37.71
Low Clarity	9	128.11	15.76
Attention Motivation			
High Clarity	10	54.50	11.18
High Clarity Minus Links	10	60.40	4.72
High Clarity Minus Focusing	10	37.90	13.80
Low Clarity	10	40.00	4.47
Relevance Motivation			
High Clarity	10	38.20	7.67
High Clarity Minus Links	10	40.20	5.90
High Clarity Minus Focusing	10	28.33	10.82
Low Clarity	9	26.33	6.32
Confidence Motivation			
High Clarity	10	33.80	7.61
High Clarity Minus Links	10	36.10	8.33
High Clarity Minus Focusing	10	24.40	9.89
Low Clarity	9	24.67	5.91
Satisfaction Motivation			
High Clarity	10	43.70	14.61
High Clarity Minus Links	10	46.60	9.40
High Clarity Minus Focusing	10	39.00	9.12
Low Clarity	9	37.11	5.84

Table 7

Means and Standard Deviations of Student Concept Achievement

	N	M	SD
Defining Concepts			
High Clarity	10	10.20	4.26
High Clarity Minus Links	10	8.10	3.73
High Clarity Minus Focusing	10	9.40	4.24
Low Clarity	10	5.00	2.40
Identifying Concepts			
High Clarity	10	8.30	2.11
High Clarity Minus Links	10	6.20	1.99
High Clarity Minus Focusing	10	6.70	2.26
Low Clarity	10	5.40	2.17
Applying Concepts			
High Clarity	10	2.40	2.07
High Clarity Minus Links	10	.60	.84
High Clarity Minus Focusing	10	.90	1.29
Low Clarity	10	1.00	1.49

Table 8

Means and Standard Deviation of
Student's Perception of Instructional Clarity

	N	M	SD
High Clarity	10	79.40	10.04
High Clarity Minus Links	10	80.70	5.91
High Clarity Minus Focusing	10	64.70	13.38
Low Clarity	10	49.10	8.24

content areas for students to transfer knowledge to new situations.

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